

IN THE CLAIMS

Claims 1-4 (canceled)

5. (currently amended) A scanner comprising:

(a) a plurality of input channels, each said channel including a photodetector, each such channel providing data elements representing light impinging on the photodetector of such channel, each such channel including a signal processing and digitization circuit connected to the photodetector, wherein the signal processing and digitization circuit of each said channel is arranged to supply said data elements as transition data elements, each such transition data element including data denoting a transition as mark-to-space or space-to-mark and data denoting the duration of an interval between successive transitions;

(b) means for exposing the photodetectors of said channels to light from objects to be scanned so that the light impinging on the photodetector of each channel represents an optical property of objects to be scanned at a series of points along a scanning path associated with such channel;

(c) data stream means for accepting data elements from each channel and outputting a stream of data elements including data elements from said plurality of channels; and

(d) a decoder operative to examine said stream of data elements and recover information denoted by the data elements in said stream;

~~A scanner as claimed in claim 7~~ wherein said data stream means is operative to provide said stream of data elements so that series of data elements from different channels are provided in

alternating sequence, with a series of data elements from one channel followed by another series of data elements from a different channel.

Claims 6-8 (canceled)

9. (currently amended) A scanner comprising:

(a) a plurality of input channels, each said channel including a photodetector, each such channel providing data elements representing light impinging on the photodetector of such channel, each such channel including a signal processing and digitization circuit connected to the photodetector, wherein the signal processing and digitization circuit of each said channel is arranged to supply said data elements as transition data elements, each such transition data element including data denoting a transition as mark-to-space or space-to-mark and data denoting the duration of an interval between successive transitions;

(b) means for exposing the photodetectors of said channels to light from objects to be scanned so that the light impinging on the photodetector of each channel represents an optical property of objects to be scanned at a series of points along a scanning path associated with such channel;

(c) data stream means for accepting data elements from each channel and outputting a stream of data elements including data elements from said plurality of channels; and

(d) a decoder operative to examine said stream of data elements and recover information denoted by the data elements in said stream,

~~A scanner as claimed in claim 7~~ wherein said data stream means includes a FIFO buffer associated with each said channel and having an input connected to the processing and digitization circuit of such channel and an output, said data stream means further including a multiplexer having inputs connected to the outputs of the FIFO buffers associated with all of said channels and an output connected to said processor.

Claims 10-12 (canceled)

13. (currently amended) A method of scanning objects bearing codes comprising:

(a) exposing a plurality of photodetectors, each associated with a separate input channel, to light from objects to be scanned so that the light impinging on each photodetector represents an optical property of objects to be scanned at a series of points along a scanning path associated with such photodetector;

(b) operating each such input channel to provide transition data elements representing light impinging on the photodetector of such channel, each such transition data element including data denoting a transition as mark-to-space or space-to-mark and data denoting the duration of an interval between successive transitions for such channel;

(c) storing data elements from each channel;

(d) forming a stream of said data elements including data elements from a plurality of said channels by recovering said stored data elements from each channel and providing a plurality of series of data elements, the data elements within each such

series being data elements from a single one of said channels;
and

(e) examining said stream of data elements in a decoder and
recovering information denoted by the data elements in said
stream of data elements;

~~A method as claimed in claim 12~~ wherein said series of data elements from different channels are provided in alternating sequence in said stream of data elements, with a series of data elements from one channel followed by another series of data elements from a different channel.

Claims 14-16 (canceled)

17. (currently amended) ~~A method as claimed in claim 12 or 13~~
A method of scanning objects bearing codes comprising:

(a) exposing a plurality of photodetectors, each associated
with a separate input channel, wherein each said channel is
associated with a separate FIFO buffer, to light from objects to
be scanned so that the light impinging on each photodetector
represents an optical property of objects to be scanned at a
series of points along a scanning path associated with such
photodetector;

(b) operating each such input channel to provide transition
data elements representing light impinging on the photodetector
of such channel, each such transition data element including
data denoting a transition as mark-to-space or space-to-mark and
data denoting the duration of an interval between successive
transitions for such channel;

(c) storing data elements from each channel, including and
~~wherein said step of storing data elements includes inputting~~

the data elements from each said channel to the FIFO buffer associated with such channel in temporal order τ_i ;

(c) forming a stream of said data elements including data elements from a plurality of said channels by recovering said stored data elements from each channel and providing a plurality of series of data elements, the data elements within each such series being data elements from a single one of said channels, including and wherein said step of forming said data stream includes outputting samples from one of said FIFO buffers at a time; and

(d) examining said stream of data elements in a decoder and recovering information denoted by the data elements in said stream of data elements.

Claims 18-19 (canceled)

20. (new) A method of scanning objects bearing codes comprising:

(a) exposing a plurality of photodetectors, each associated with a separate input channel, wherein each said channel is associated with a separate FIFO buffer, to light from objects to be scanned so that the light impinging on each photodetector represents an optical property of objects to be scanned at a series of points along a scanning path associated with such photodetector;

(b) operating each such input channel to provide transition data elements representing light impinging on the photodetector of such channel, each such transition data element including data denoting a transition as mark-to-space or space-to-mark and data denoting the duration of an interval between successive transitions for such channel;

(c) storing data elements from each channel including inputting the data elements from each said channel to the FIFO buffer associated with such channel in temporal order;

(c) forming a stream of said data elements including data elements from a plurality of said channels by recovering said stored data elements from each channel and providing a plurality of series of data elements, the data elements within each such series being data elements from a single one of said channels, including outputting samples from one of said FIFO buffers at a time; and

(d) examining said stream of data elements in a decoder and recovering information denoted by the data elements in said stream of data elements;

wherein said series of data elements from different channels are provided in alternating sequence in said stream of data elements, with a series of data elements from one channel followed by another series of data elements from a different channel.